

CLAIMS

We claim:

1. An image forming device comprising:
 - 5 a scanner configured to scan one or more objects and generate image data representing each of the one or more objects;
 - a memory configured to store each of the image data as a page of data;
 - a page frame buffer configured to store a page of data, copied from the memory, that is to be imaged;
 - 10 an imaging mechanism configured to receive the page of data from the page frame buffer and generate an image from the page of data onto a print media; and
 - a dual bus system configured to allow parallel transmission of data where the image data can be transmitted from the scanner to the memory simultaneously with transmitting the page of data from the page frame buffer to the imaging mechanism.
- 15 2. The device of claim 1 where the dual bus system includes a first bus configured to communicate data between the scanner and the memory, and a second bus configured to communicate data between the page frame memory and the imaging mechanism.
- 20 3. The device of claim 2 where the first bus is configured to allow image data to be loaded into the memory independent of transmitting data from the page frame memory to the imaging mechanism.
- 25 4. The device of claim 2 further comprising:
 - a first processor configured to control communication of the image data to the memory; and
 - a second processor configured to control communication of the page of data from the page frame memory to the imaging mechanism.
- 30

5. The device of claim 4 where the second processor is configured to decompress the page of data and transmit pulse modulated wave patterns to the imaging mechanism based on the decompressed page of data.

5 6. The device of claim 4 where the first and second processors include application specific integrated circuits.

7. The device of claim 1 where the page frame buffer is configured to store one or more pages of data as one or more units.

10

8. The device of claim 1 where the dual bus system is configured to communicate data by direct memory access.

15

9. The device of claim 1 further including a storage device configured to store image data from the scanner once the memory is full.

10. The device of claim 1 where the page of data includes at least three planes of color data.

20

11. A method of processing image data in an image forming device, the method comprising:

scanning one or more sheets of print media and generating one or more image data pages;

loading the one or more image data pages into a memory;

25

copying a first image data page into a page frame memory from the memory to prepare for imaging; and

transmitting the first image data page for imaging to an imaging mechanism where the transmitting can occur in parallel with the loading.

30

12. The method of claim 11 further including converting the first image data page into print ready data before transmitting for imaging.

13. The method of claim 11 further including holding the first image data page in the page frame memory until the imaging mechanism is ready to print.

14. The method of claim 11 further including loading one or more image data pages into a mass storage device once the memory is full.

15. The method of claim 11 further including removing an image data page from the memory after the image data page has been imaged and outputted from the image forming device.

16. The method of claim 11 further including sequentially copying the one or more image data pages from the memory to the page frame memory to prepare for imaging.

17. A system for formatting image data for an image forming device, the system comprising:

a first data bus;

a first memory configured to store image data pages, the first memory being configured to receive the image data pages over the first data bus;

a second memory configured to load a page of data that is to be imaged, the page of data being received from the first memory; and

a second data bus configured to communicate the page of data from the second memory to an imaging mechanism where the page of data can be transmitted to the imaging mechanism in parallel with the first memory receiving the image data pages.

18. The system as set forth in claim 17 further including an imaging processor configured to process the page of data from the second memory into print ready data that can be processed by the imaging mechanism.

19. The system as set forth in claim 18 where the imaging processor includes one or more logic circuits each configured to process one plane of color data from the page of data.

20. The system as set forth in claim 17 where the first data bus is in data communication with a scanning device configured to scan objects and generate a image data page including color data representing each scanned object.

5 21. The system as set forth in claim 17 further including a storage disk device configured to store overflow image data pages after the first memory is at capacity.

10 22. The system as set forth in claim 17 where the system is configured to copy an image data page from the first memory to the second memory by direct memory access.

23. The system as set forth in claim 17 where the system is configured to process image data pages as one or more data units.

15